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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/577,333	04/28/2006	Tomohisa Yamada	0171-1270PUS1	8031
2292 7590 08/18/2009 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER				
FANG, SHANE				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
08/18/2009		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

### Office Action Summary

**Application No.**

10/577,333

**Applicant(s)**

YAMADA ET AL.

**Examiner**

SHANE FANG

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 May 2009.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1, 2 and 4-13 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1, 2 and 4-13 is/are rejected.  
7) ☒ Claim(s) 4 is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 04/8/2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SI/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

- The previous ODP rejection of claim 6 has been withdrawn.
- The previous 102 rejection of claim 3 over Ong et al. (US 4983482 A) has been rendered moot by cancellation.
- The previous 102 rejection of claims 1, 3-4, and 7 over Ong et al. (US 4983482 A) has been overcome by amendment.
- The previous 102/103 rejection of claim 2 over Ong et al. has been overcome by amendment.
- The previous 103 rejection of Claims 5-6 over Ong et al. in view of Webb et al. (US 6444768 B1) and Tazuke et al. (US 4226967 A) has been overcome by amendment.
- The previous 103 rejection of Claims 5-6 over Murata et al. (US 6143433) in view of Ong et al. has been overcome by amendment.
- The amendment has been supported by instant specification [0059, 24].

### ***Claim Objections***

1. Claim 4 objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. In particular, claim 1 recites R<sup>3</sup> group

represents a divalent organic group having a phenoxy group at opposite ends; while claim 4 recites R<sup>4</sup> represents a divalent group that may have a substituent group.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claim 1-2 and 4-13 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, claims 1 and 2 fails to define "n". For examination purpose, n is considered as an integral larger than 1.

***Claim Rejections - 35 USC § 102***

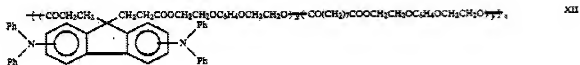
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

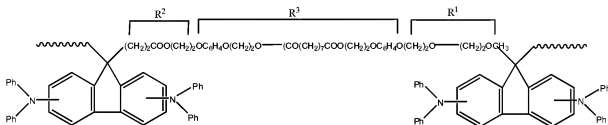
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claim 1-2, 4, and 7-8 rejected under 35 U.S.C. 102(b) as being anticipated by Ong et al. (US 5034296) listed on IDS.

As to claim 1, Ong et al. discloses a charge transport compound (Abs.) having the following structure (11: XII), wherein Ph is phenyl (claim 19), x+y=1 (claim 1) and x and y can be 0.5 (11: XIII):



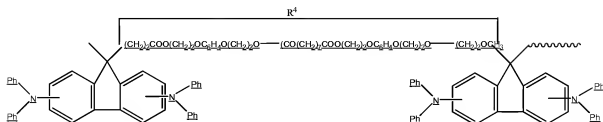
The following drawing of rearrangement of formula XII structure gives the following unit structure that meet claim 1:



One of ordinary skill in the art would at once envisage  $C_6H_4$  group as being 1, 4-phenylene out of limited number of possibilities ( $C_6H_4$  can be 1,2- phenylene, 1,3-phenylene or  $CH=CH-C\equiv C-CH=CH$ ). Note the example of phenoxy group having divalent group at opposite ends in the instant specification contains groups between phenyl rings.

As to claim 2, Ong et al. is silent on the MW of formula XII that meet claim 1. However, Ong et al. discloses a method of producing a structural similar polymer (formula XIII, Col 11) having a MW of 15,500. One of ordinary skill in the art would at once envisage using disclosed method and formula to obtain a polymer featuring the same MW, because Ong et al. obviously satisfy all of the material, chemical, and process limitations of the instant invention-see MPEP 2112.01.

For the same reason, the following drawing of rearrangement of formula XII structure gives the following structure that meet claim 4:



As to claim 7, Ong et al. discloses charge transporting compounds is applied a coating layer (vanish) (Ex. XI).

As to claim 8, Ong et al. discloses charge transporting compounds is applied a thin film of 5-60 microns (vanish) (15:50). Note the thin film described in instant specification is preferably 5-200 nm ([0088]), including the disclosed range.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 5-6 rejected under 35 U.S.C. 103(a) as being unpatentable over Ong et al. (US 5034296) in view of Yamada et al. (WO 2003/094578) (English equivalent of US 7358660 is used and listed in the previous 892).

Disclosure of Ong et al. is adequately set forth in ¶4 and is incorporated herein by reference.

Ong et al. is silent on further comprising "electron accepting compound" as recited in claims 5-6.

Yamada et al. discloses mixing charge transport polymer with carbenium (15: 43-35) as electron acceptor having the following structure that reads on the structure of claim 6:



(where Ar<sup>1</sup> to Ar<sup>3</sup> denote identical or different, substituted or unsubstituted aromatic groups; and R<sup>+</sup> denotes an anion species.

Yamada et al. further discloses the motivation of improving the efficiency of electron and hole injection by using the disclosed carbenium (2:64-65, 3:1-3).

Therefore, as to claims 5-6, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified to the charge transport polymer disclosed by Ong et al. and add the carbenium in view of Yamada et al., because the resultant charge transport polymer would have improved the efficiency of electron and hole injection.

8. Claim 1-2 and 7-13 rejected under 35 U.S.C. 103(a) as being unpatentable over Miki et al. (JP 2002179630A) in view of Ong et al. (US 5034296).

As to claim 9, Miki et al. discloses a polyamino-fluorene derivative used as the charge-transporting material in for an organic electroluminescent element (Abs.).

Miki et al. is silent on the charge transport compound as recited in claims 1-2.

As to claims 1-2 and 7-8, Ong et al. discloses a charge transport compound (formula XII) that is set forth in above ¶ 4. Ong et al. discloses the advantage of said compound for enhancing the transport efficiency (8:46-48).

As to claims 10-13, Ong et al. discloses the charge transporting thin film but silent on the intended use of "hole transporting/injection layer" and "electron transporting/injection layer". However, statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the recited purpose or intended use results in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art. If so, the recitation serves to limit the claim. See, e.g., *In re Otto*, 312 F.2d 937, 938, 136 USPQ 458, 459 (CCPA 1963). In this particular case, the disclosed charge transporting thin film is capable of performing the intended use as recited in the preamble.

Therefore, as to claims 1-2 and 7-13, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified to the organic electroluminescent element disclosed by Miki et al. and replaced the polyamino-fluorene derivative with a thin film of charge transport compound (formula XII) in view of Ong et al., because the resultant organic electroluminescent element would have enhanced transport efficiency in the charge transporting thin film.



### ***Response to Arguments***

The applicant has not provided argument against previous rejections of original claims in the previous rejection. However, the previous rejections over claims 1-20 have been overcome by amendment or cancellation.

The argument of amended claims for allowance has been fully considered but not persuasive. The argument is addressed by rejections in the above paragraphs.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHANE FANG whose telephone number is (571)270-7378. The examiner can normally be reached on Mon.-Thurs. 8 a.m. to 6:30 p.m. EST.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

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Sf

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Supervisory Patent Examiner, Art Unit 1796